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Steven Joel Bullied

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LIN, KUANG Y

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/809,072
Filing Date: March 25, 2004
Appellant(s): BULLIED ET AL.

MAILED

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GROUP 1700

Tracey R. Loughlin
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed October 26, 2006 appealing from the Office action mailed May 26, 2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

4,180,119	Burd et al.	12-1979
4,475,582	Giamei et al.	10-1984
4,940,073	Jeyarajan et al.	7-1990

5,062,468	Monte et al.	11-1991
5,062,469	Monte et al.	11-1991

(9) Grounds of Rejection

In view of appellant's remarks US 4,940,073 is hereby withdrawn as reference for the rejection.

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1-12, 15, 17-30 and 33-35 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Monte et al. (US 5,062,468 or 5,062,469) and further in view of US 4,180,119 to Burd et al.

Each of the primary references substantially shows the invention as claimed except that the configuration of their grain selector is different from that of claimed. However, Burd et al. show to provide a grain selector with a helix configuration. Further, in col. 1, lines 17-22 of Monte's '468 patent and col. 1, lines 21-25 of Monte's '469 patent, respectively, it discloses that it is conventional to provide a helical selector. Thus, it would have been obvious to use the conventional helical selector in the mold of Monte in view of the prior art teaching as a whole. The invention of Monte patents is an improved mold over the conventional mold having a helix grain selector. The improved mold of Monte does not render the conventional mold unobvious.

2. Claims 1-12, 15, 17-30 and 33-35 stand rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,180,119 to Burd et al. and further in view of Monte et al. (US 5,062,468 or 5,062,469).

Burd et al. substantially show the invention as claimed except that they do not provide a single seed crystal for growing single crystal article. However, each of the secondary references teaches to use both a single crystal seed and a non-liner tubular grain selector in an investment mold to ensure that a predetermined crystal structure is obtained in the final cast component. It would have been obvious to further provide the system of Burd et al. with a single crystal seed in the starter cavity for growing single crystal components in view of Monte such that to ensure only single crystal is grown in the mold cavity and thereby reduce the scrap rate. It would have been obvious to obtain the optimal structural parameters through routine experimentation.

3. Claims 1-12, 15, 17-30 and 33-35 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Giamei et al. (US 4,475,582) and further in view of either Monte et al. (US 5,062,468 or 5,062,469) or Burd et al. (4,180,119). Giamei et al. substantially show the invention as claimed except the grain selector support. However, each of the secondary references shows to provide a gain selector support so as to assume the load imposed on the crystal selector (see col.2 lines 36-48 of Burd et al.). It would have been obvious to provide Giamei et al. with the grain selector support of the secondary references in view of the advantage. It would have been obvious to obtain the optimal structural parameters through routine experimentation.

(10) Response to Argument

a. In pages 7-8 and 9-10 of the brief appellant repeatedly stated that both Monte patents teach away from the more complex grain selector configuration (i.e., helix, three-dimensional bends, staircases, zigzags). However, in the mold of Monte patents the use of the simplicity of construction of the selector passage can still obtain the single crystal without using the complex grain selector configuration of the conventional mold. The mold of Monte patents is an improved mold over the conventional one which has complex grain selector configuration. The improved mold of Monte patents having a simpler grain selector configuration does not render the conventional mold having a complex grain selector configuration unobvious.

b. In page 8, last paragraph and page 10, 2nd paragraph of the brief appellant repeatedly stated that Burd does not disclose utilizing a seed crystal. However, Monte patents as well as Giamei patent all disclose to use a seed crystal. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

c. In page 9, 2nd paragraph and page 10, 3rd paragraph of the brief appellant stated that Giamei does not disclose utilizing a grain selector support. However, Monte patents as well as Burd patent all disclose to

use a grain selector support to assume the load otherwise imposed on the crystal selector (see col. 2, lines 36-48 or Burd patent). Again, one cannot show nonobviousness by attacking references individually where the rejection are based on combination of references.

d. In pages 10 and 11 of the brief appellant further stated that there is no suggestion or motivation in any of Monte I, Monte II, Burd or Giamei to modify any of the inventions as suggested by Examiner. The reasons for modifying Monte I and Monte II has been treated in paragraph a supra. With respect to the modification of Burd in view of Monte I or Monte II, it would have been obvious to provide the mold of Burd et al. with a single crystal seed in the starter cavity for growing single crystal components in view of Monte such that to ensure only single crystal is grown in the mold cavity and thereby reduce the scrap rate, i.e. use both helical grain selector and seed crystal in a mold to enhance the probability of obtaining a single crystal. With respect to the modification of Giamei in view of either Monte I, Monte II or Burd, it would have been obvious to provide the mold of Giamei with the grain selector support of the secondary references such that to assume the load otherwise imposed on the crystal selector (see col. 2, lines 36-48 or Burd patent).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

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For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



Kuang Lin

Conferees:

Patrick Ryan

Bill Krynski


